

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
12 September 2003 (12.09.2003)

PCT

(10) International Publication Number  
**WO 03/074426 A1**

(51) International Patent Classification<sup>7</sup>: **C01G 23/07**,  
B01J 35/02, C08L 83/04, C08K 3/22, H01L 31/04, H01M  
14/00

(74) Agents: **ISHIDA, Takashi** et al.; A. AOKI, ISHIDA &  
ASSOCIATES, Toranomon 37 Mori Bldg., 5-1, Toranomon  
3-chome, Minato-ku, Tokyo 105-8423 (JP).

(21) International Application Number: PCT/JP03/02673

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 6 March 2003 (06.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2002-060541 6 March 2002 (06.03.2002) JP  
60/363,305 11 March 2002 (11.03.2002) US

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **SHOWA DENKO K. K.** [JP/JP]; 13-9, Shiba Daimon 1-chome, Minato-ku, Tokyo 105-8518 (JP).

(72) Inventors; and

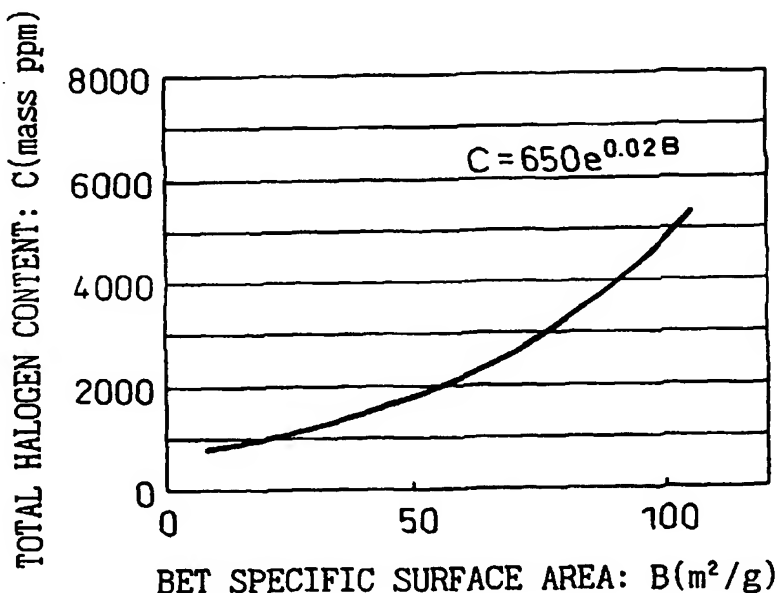
(75) Inventors/Applicants (*for US only*): **KAYAMA, Susumu** [JP/JP]; C/O SHOWA TITANIUM CO. LTD., 3-1, Nishinomiyamachi, Toyama-shi, Toyama 931-8577 (JP). **TANAKA, Jun** [JP/JP]; C/O SHOWA TITANIUM CO. LTD., 3-1, Nishinomiyamachi, Toyama-shi, Toyama 931-8577 (JP).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **ULTRAFINE PARTICULATE TITANIUM OXIDE WITH LOW CHLORINE AND LOW RUTILE CONTENT, AND PRODUCTION PROCESS THEREOF**



(57) Abstract: An anatase-type ultrafine particulate titanium oxide produced through a vapor-phase process, which has low chlorine content and exhibits excellent dispersibility as compared with conventional titanium oxide having a BET specific surface area comparable to that of the ultrafine particulate titanium oxide. When the ultrafine particulate titanium oxide is subjected to dechlorination, the titanium oxide satisfies the relation between BET surface area (B) and chlorine content (C) represented by the aforementioned formula (2). The ultrafine particulate titanium oxide has a D<sub>90</sub> of 2.5 (μm or less as measured by means of laser diffraction particle size analysis). The present invention also provides a process for producing the ultrafine particulate titanium oxide.

WO 03/074426 A1